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THE LARVA OF *ARGIA CROCEIPENNIS* SELYS (ZYGOPTERA: COENAGRIONIDAE)

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The larva is described and illustrated for the first time, based on a specimen from southern Brazil. The features separating *A. croceipennis* from *A. insipida, A pulla* and *A. sordida* are outlined.

INTRODUCTION

The genus *Argia* Rambur, 1842 is represented in the neotropical region by approximately 110 species (STEINMANN, 1997), 39 of which are also known from their last larval stage (VON ELLENRIEDER, 2007).

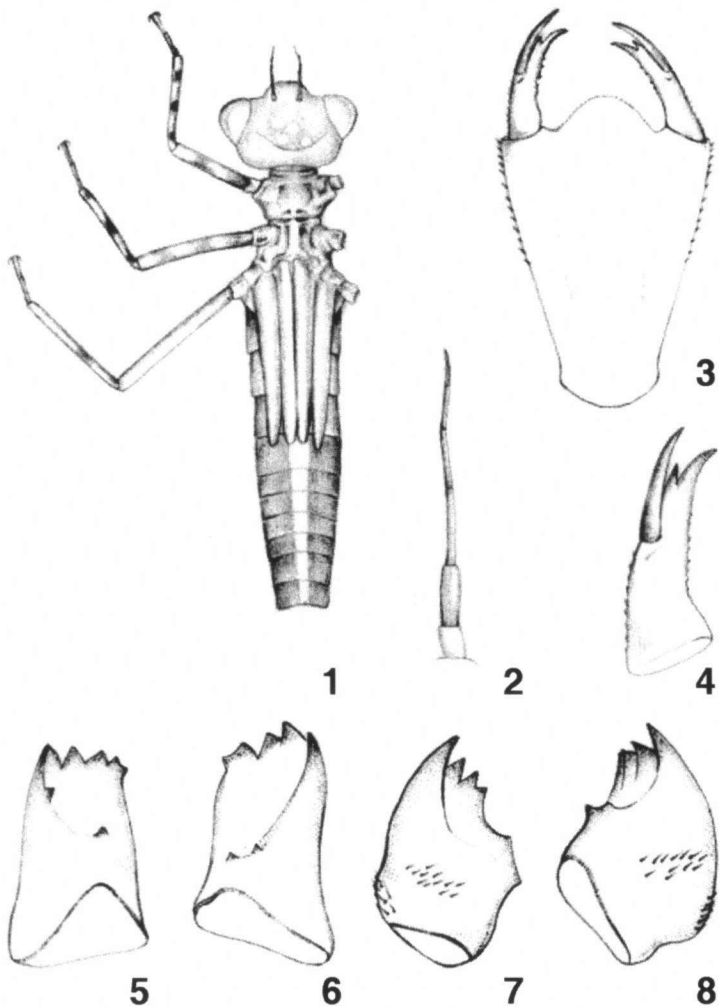
In Brazil, *Argia* is represented by at least 30 species (LENCIONI, 2006), three of which are also known from their last larval instar, viz. *A. insipida* Hagen (GEIJSKES, 1943) from Surinam, *A. pulla* Hagen (NOVELO-GUTIERREZ, 1992) from Mexico and *A. sordida* Hagen (SANTOS, 1968) from Brazil. Here we describe the larva of *A. croceipennis* Selys, 1865. The original description of *A. sordida* (SANTOS, 1968) is insufficient to separate it from the larvae of other species. Therefore, we redescribe and illustrate some important structures (mandibles, details of gonapophyses and cerci) not cited by SANTOS (1968).

METHODS

The larva of *Argia croceipennis* was collected with a Sauber trap in Atlantic tropical rain forest in Santa Catarina state (26°55' S, 52°51' W), and that of *A. sordida* in Marambaia Island, Rio de Janeiro

state (23°04' S, 43°53' W). Both were reared to adult in the laboratory.

Description is from preserved exuviae. Terminology of the labium follows CORBET (1953) and that of mandibles follows WATSON (1956). Drawings were made with the aid of a camera lucida on a stereoscopic microscope. Specimens are deposited in the Museu Nacional collection, Rio de Janeiro, Brazil. The exuviae of *A. sordida* was compared with the one described by SANTOS (1968).



Figs 1-8. Ultimate larval instar of *Argia croceipennis* Selys: (1) general aspect, dorsal view; – (2) left antenna; – (3) prementum, dorsal view; – (4) left labial palp, dorsolateral view; – (5) right mandible, inner view; – (6) left mandible, inner view; – (7) right mandible, lateral view; – (8) left mandible, lateral view.

ARGIA CROCEIPENNIS SELYS, 1865

Figures 1-13

M a t e r i a l. – Ultimate larval instar: BRAZIL, Santa Catarina, Chapecó, Rio Irani, Ponte Serrada, 26°55' S, 52°51' W, XII-2005, C.T. Ravanello and G.M. Souza-Franco leg., 1 ♂ (emerged in laboratory).

Exuviae light brown (Fig. 1). H e a d. – Trapezoidal, wider than long, flat, with posterior margin slightly concave, and cephalic lobes bearing a row of minuscule stout setae (Fig. 1). Ventral margin of eyes at level of mandible bases and near of maxillae with 6 claviform setae on left and 4 on right side. Antennae 7-segmented (Fig. 2), longer than head, with antennomere 3 the longest, longer than 1+2; antennomere 1 pale, remaining brown with pale tips. Prementum (Fig. 3) triangular, longer than wide, without premental setae but with 2-3 small spines and 13 marginal spiniform setae on basal part of each side; ligula prominent, with small claviform setae along margin. Premental palp (Fig. 4) with two teeth shorter than movable hook; medial margin of palp and outer margin of outer tooth finely crenulated; outer margin of ligula bare; 1 short palpal seta basal to movable hook. Articulation of pre- and postmentum at level of posterior margin of coxae I. Mandibles (Figs. 5-8) with molar teeth but lacking molar crest, with following formula: L 1234 0 a b/R 1234 y 0 b.

T h o r a x (Fig. 1). – Light brown. Pronotum quadrangular, with anterodorsal corners dark brown and bearing small spiniform setae visible in dorsal and lateral views. Wing pads extending to abdominal segment 4. Legs pale with dark bands: two on femur I and tibia III; three in femur II and tibiae II and III, and none in femur III.

A b d o m e n (Fig. 1). – Dark brown with medio-longitudinal pale stripe. Posterior half of abdominal sternum 7 and all of sternum 8 covered with claviform setae (Fig. 9). Gonapophyses (Figs 9-10) pointed and with two-three rows of claviform setae with parallel apices along ventral margin, extending to mid length of abdominal 10. Male cerci (Figs 10-11) short and rounded. Caudal lamellae (Figs 12-13) triquetral basally; medial lamella (Fig. 13) rounded, shorter than lanceolate lateral lamellae (Fig. 12).

M e a s u r e m e n t s (in mm). – Total length without appendages: 13; prementum length: 2.6; prementum max width: 2.0; femur I: 2.0; femur II: 2.50; femur III: 3.50; inner wing pads: 5.0; external wing pads: 4.5; medial caudal lamella: 4.0; lateral caudal lamella: 5.2.

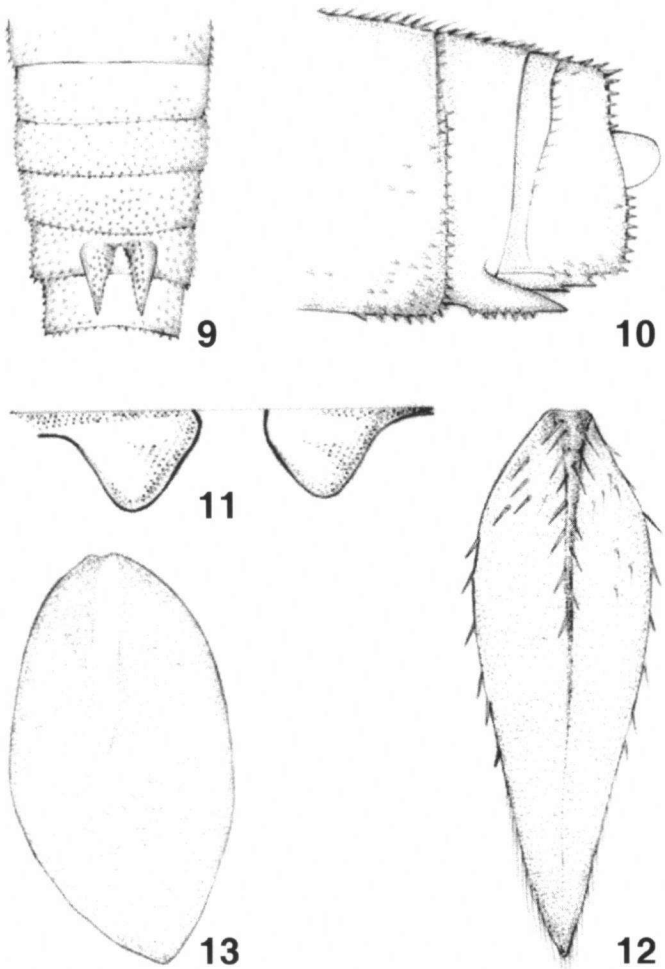
ARGIA SORDIDA HAGEN *in* SELYS, 1865

Figures 14-21

M a t e r i a l. – Ultimate larval instar: BRAZIL, Rio de Janeiro state, Ilha da Marambaia (23°04' S, 43°53' W), 14-XI-2004, J.M. Costa et al., leg., 1 specimen (emerged in laboratory); – 18-VI-2005, G.L. de Almeida and D.A. dos Santos leg., 1 specimen (emerged in laboratory); – Tijuca, Açude da Solidão (22°55' S, 43°13' W), 25-XI-1967, N.D. Santos and C. Borges leg., 1 specimen.

Similar to *A. croceipennis* in size, morphology and color pattern, except for that of caudal lamellae. It differs from it as follows: Mandibular formula (Figs 14-17): L1234 0 a b, R 1234 y 0 b, but left mandible (Fig. 14) with molar teeth (a, b) larger; ventral margin of eyes at level of mandible bases and near of maxilae with 3 claviform setae on left side and 2 on right side; basal part of prementum without spines on each side.

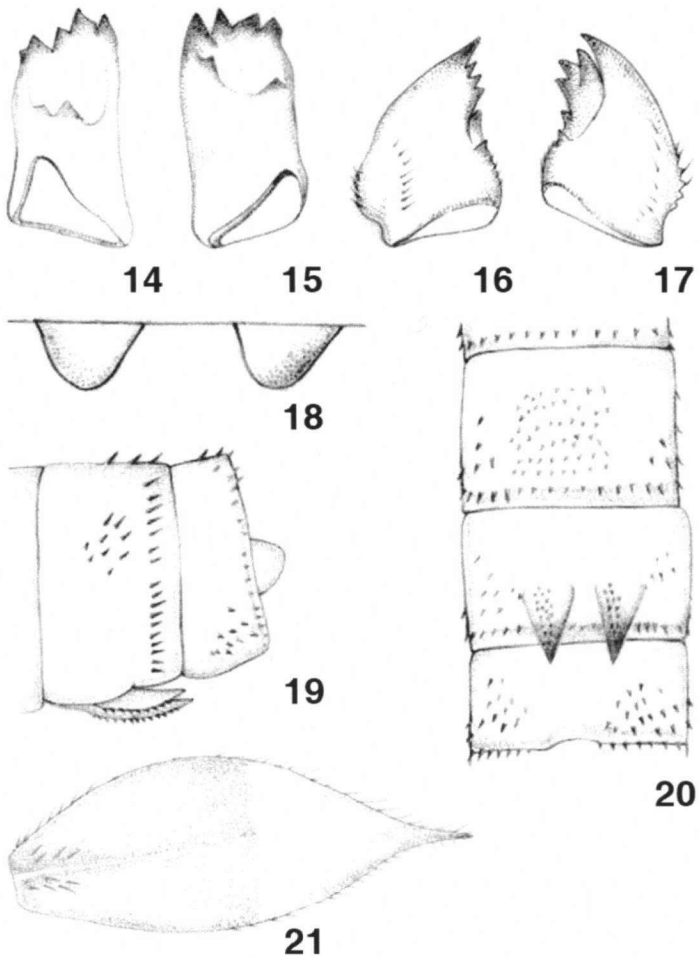
T h o r a x. – Pronotum with anterodorsal corners bearing 5-7 spiniform setae.



Figs 9-13. Ultimate larval instar of *Argia croceipennis* Selys: (9) abdominal segments 5-10, ventral view; – (10) abdominal segments 8-10, lateral view; – (11) cerci, dorsal view; – (12) lateral caudal lamella, lateral view; – (13) medial caudal lamella, lateral view.

A b d o m e n. – Male cerci (Figs 18, 20) light brown. Gonapophyses (Figs 19-20) pointed and with 2-3 rows of claviform setae along ventral margin, not reaching mid length of abdominal segment 10 (Figs 19-20). Caudal lamellae black. Medial caudal lamella (Fig. 21) similar to lateral lamellae, but smaller and wider.

M e a s u r e m e n t s (in mm). – Total length without appendages: 15-16; prementum length: 2.6; prementum max width: 2.0; femur I: 2.5; femur II: 2.51; femur III: 3.51; inner wing pads: 5.2; external wing pads: 4.7; medial caudal lamella: 3.0-4.0; lateral caudal lamella: 6.0.



Figs 14-21. Ultimate larval instar of *Argia sordida* Hagen *in* Selys: (14) left mandible, inner view; – (15) right mandible, inner view; – (16) right mandible, lateral view; – (17) left mandible, lateral view; – (18) cerci, dorsal view; – (19) abdominal segments 8-10, ventral view; – (20) abdominal segments 8-10, lateral view; – (21) lateral caudal lamella, lateral view.

DISCUSSION

Argia croceipennis can be included in the group of *Argia* larvae with very prominent ligula and 1 palpal seta as classified by NOVELO-GUTIÉRREZ (1992). GEIJSKES (1943) provided the description of the larva of *A. insipida* Hagen based on 3 males and 2 females from Surinam. This species was cited by LENCIONI (2006) from Brazil (Amazonas and Pará states) as with larva unknown. SANTOS (1968) made a summary description of the female larva of *A. sordida* from Brazil, Rio de Janeiro, collected in a stream in Floresta da Tijuca. NOVELO-GUTIERREZ (1992) provided a description of the larvae of 14 species from Mexico, of which *A. pulla*, is cited from Brazil (Roraima state) by LENCIONI (2006) as with larva unknown.

Here we describe the larva of *A. croceipennis*, bringing the number of Brazilian species with the known larvae up to four, viz. *A. croceipennis, A. insipida, A. pulla* and *A. sordida.*

The larva of *A. sordida* can be easily separated from that of *A. crocepennis* by its big molar teeth of left mandibles (ab) (very small in *A. croceipennis*), and caudal lamellae black with pale distal ends (light brown in *A. croceipennis*). It also differs by the reduced number of spines on sternum of abdominal segments 8-10 (numerous spines in *A. croceipennis*).

The larva of *A. croceipennis* differs from that of *A. insipida* by its acutely pointed gonapophyses with three rows of spiniform setae (blunt with one row of claviform setae in *A. insipida*), and from that of *A. pulla* by its short cerci with rounded apex (conic in *A. pulla*) and only first antennomere pale (first and second antennomeres pale in *A. pulla*).

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